

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

PUBLICATION NUMBER : 59004183  
PUBLICATION DATE : 10-01-84

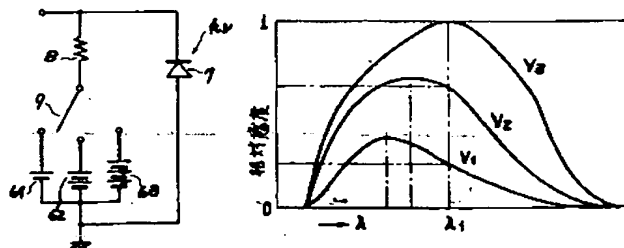
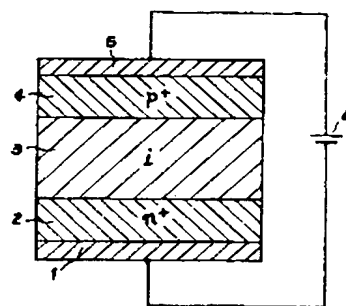
APPLICATION DATE : 30-06-82  
APPLICATION NUMBER : 57113435

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INT.CL. : H01L 31/10

TITLE : COLOR DETECTING SYSTEM



**ABSTRACT :** PURPOSE: To enable to discriminate multiple colors with a sole element on the basis of the displacement of a peak point of a current value at each applied voltage by varying the value of reverse bias applied to a photodiode at two stages and more.

**CONSTITUTION:** When a reverse bias is applied to a diode 7, a depletion layer is generated in a Schottky junction between an i-type layer 3 and a platinum layer 4, and a current flowed in a photocarrier, but when the value of a reverse bias is increased, the extension of the depletion layer gradually increases. However, when the wavelength of the incident light is short, the light of the short wavelength can be relatively effectively absorbed when the extension of the depletion layer is small. When the reverse bias is increased to extend the depletion layer, the light gradually decreased the relative sensitivity, but when the wavelength of the light is long, the sensitivity gradually increases, it reaches the peak point at the long wavelength side as compared with the voltage  $V_1$ . As a result, when the reverse bias is increased from the voltage  $V_1$  to the voltages  $V_2$ ,  $V_3$ , the peak point of the sensitivity is gradually displaced to the long wavelength side. Accordingly, the value of the reverse bias is switched by a measuring circuit, the current value for each bias voltage is detected across a detecting resistor 8, and the output ratio is measured. In this manner, the color can be discriminated from the output ratio.

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